

REMARKS

Overview of the Office Action

Claims 1, 2, 5, 11, 18, and 19 have been rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 6,078,274 (“Inou”).

Claims 3 and 4 have been rejected under 35 U.S.C. §103(a) as unpatentable over Inou in view of U.S. Patent Pub. No. 2002/0000979 (“Furuhashi”).

Claims 6, 8, and 9 have been rejected under 35 U.S.C. §103(a) as unpatentable over Inou in view of U.S. Patent No. 5,647,152 (“Miura”).

Claim 7 has been rejected under 35 U.S.C. §103(a) as unpatentable over Inou and Miura in view of U.S. Patent No. 6,239,778 (“Palffy-Muhoray”).

Claims 12 and 14 have been rejected under 35 U.S.C. §103(a) as unpatentable over Inou in view of Palffy-Muhoray.

Claim 13 has been rejected under 35 U.S.C. §103(a) as unpatentable over Inou in view of U.S. Patent Pub. No. 2002/0075557 (“Zhang”).

Claims 15 and 17 have been allowed.

Status of the claims

Claims 1-3, 6, 8, 11-14, and 18-19 have been amended.

Claims 10 and 16 have been previously canceled.

Claim 4 has now been canceled.

Claims 15 and 17 have been allowed.

Claims 1-3, 5-9, 11-15, and 17-19 are now pending.

Rejection of claims 1, 2, 5, 11, 18, and 19 under 35 U.S.C. §102(b)

The Office Action states that Inou discloses all of Applicant's recited elements.

Independent claim 1 is amended to clarify that the display layer includes a plurality of pixel elements and to further define the lattice elements. Although numerous amendments are implemented, these amendments serve to clarify the existing limitations and do not require further search and/or consideration. Accordingly, entrance of these amendments is respectfully requested.

Independent claim 1 has been amended to recite a display apparatus that includes "a display layer; a plurality of pixel elements arranged on the display layer; and a touch-sensitive layer running parallel the display layer; wherein the touch-sensitive layer comprises first lattice elements extending in a first direction parallel to the display layer and second lattice elements extending in a second direction parallel to the display layer and orthogonal to the first direction, the first and second lattice elements intersecting at nodes of the lattice at which the first and second lattice elements can move with respect to one another, the first and second lattice elements forming a plurality of microscopic channels in the touch-sensitive layer extending in a third direction orthogonal to the first and second directions, the plurality of channels being associated with the plurality of pixel elements for viewing the display layer in the third direction and absorbing or reflecting oblique incident light from the first or second directions, the lattice spacing being matched to a pixel spacing on the display layer such that the ratio of the lattice spacing to the pixel spacing is whole-numbered. Support for the claim amendment can be found, at least, in Figs. 1 and 2 and paragraphs [0026]-[0028] and [0030] of Applicant's published specification.

Inou fails to teach or suggest a display apparatus that includes “a display layer” and “wherein a side of the touch-sensitive layer which is remote from the display layer includes an antireflection lattice comprising first lattice elements extending in a first direction parallel to the display layer and second lattice elements extending in a second direction parallel to the display layer and orthogonal to the first direction, the first and second lattice elements intersecting at nodes of the lattice at which the first and second lattice elements can move with respect to one another, the first and second lattice elements forming a plurality of microscopic channels extending in a third direction orthogonal to the first and second directions, the plurality of channels being associated with the plurality of pixel elements for viewing the display layer in the third direction and absorbing or reflecting oblique incident light from the first or second directions”, as recited in Applicant’s amended independent 1.

Inou discloses a touch panel is made up of an insulating substrate 1 with a transparent conductive film 2a, and a flexible insulating substrate 3 with a transparent conductive film 2b. A double-sided adhesive tape 5 combines the insulating substrate 1 and flexible insulating substrate 3, which are held apart by a spacer 4. Since the insulating substrate 1 and the flexible insulating substrate 3 are held apart by the spacer 4, there is a layer of air between the insulating substrate 1 and the flexible insulating substrate 3.

The Examiner cites layer 3 of Inou as teaching a display layer. As described in more detail below, the layer 3 of Inou is not, in fact, a display layer.

Inou only discloses a touch panel which is separate from a display panel (see, e.g., col. 5, lines 26-27 and col. 16, lines 66-67 of Inou). According to Figs. 1 and 2 of Inou the touch panel does not include a display layer or a display apparatus. As clearly described in col. 1, lines 32-51 and shown in corresponding Fig. 23 of Inou, the touch panel shown in Figs. 1 and 2 is a

separate entity from a display apparatus and does not include the display layer itself. The layer of Inou marked with reference number 3 in Fig. 1 is referred to as a “flexible insulating substrate made of polymeric film” (see col. 4, lines 24-26 of Inou). Layer 3 of Inou does not correspond to the display layer recited in Applicant’s amended independent claim 1. Further, because Inou does not teach or suggest a display layer, Inou also does not teach or suggest a plurality of pixel elements arranged on the display layer, as recited in Applicant’s amended claim 1.

The Examiner asserts that when a user touches the flexible substrate 3 of Inou, the substrate 3 causes the upper lattice 8 to move toward the lower lattice 8, and that this teaches Applicant’s lattice elements moving toward one another.

Applicant’s claim 1 now recites that the first and second lattice elements can move with respect to each other in the same layer, which is not taught or suggested by Inou. An example of this is shown in Fig. 3 of the present invention in which the lattice elements 5 can move relative to each other at the point where they cross each other.

The Examiner cites col. 4, lines 42-43 and asserts that the anti-reflective elements 8 of Inou absorb incident light from the side. Applicant disagrees.

Inou is concerned with ways of improving a touch panel such that a brighter display screen can be realized without impairing input sensitivity. Inou neither addresses nor solves the problem of protection against surface reflection from ambient light.

Inou discloses a touch-sensitive layer having an integrated anti-reflective film 8. The anti-reflective film 8 of Inou is used to reduce the difference in refractive index between an outer medium and an inner medium of a touch-sensitive layer (see col. 1, line 57 to col. 2, line 9 of Inou). In order to overcome the disadvantages of reduced input sensitivity, only parts of a touch-sensitive layer of Inou are equipped with the anti-reflective film 8, whereas the parts of the

touch-sensitive layer that are used for sensing are not covered with the anti-reflective film (see col. 2, lines 29-51 of Inou).

As shown in Table 1 in col. 5 of Inou, the anti-reflective film elements 8 have a very high light transmittance value (i.e. anti-reflective film elements 8 do not absorb a significant amount of light).

The purpose of an anti-reflective film is to reduce reflections off the viewed surface. Anti-reflective films are made of material that has an index of refraction that is somewhere between air and glass. This causes the intensity of the light reflected from the inner surface and the light reflected from the outer surface of the film to be nearly equal. When applied in a thickness of about a quarter of light's wavelength, the two reflections from each side of the film cancel each other out through destructive interference, minimizing the glare seen. In other words, no light is absorbed.

Nowhere does Inou teach or suggest the first and second lattice elements form a plurality of microscopic channels extending in a third direction orthogonal to the first and second directions, and the plurality of channels are associated with the plurality of pixel elements for viewing the display layer in the third direction and absorb or reflect oblique incident light from the first or second directions, as recited in Applicant's amended claim 1. In other words, Inou fails to teach or suggest that the anti-reflective film 8 absorbs incident light from the side of the touch-sensitive layer, which is remote from the display layer.

In contrast to Inou, the object of Applicant's recited invention is to provide a display apparatus with a touch sensitive layer, which offers protection against surface reflection from ambient light. According to the invention recited in Applicant's amended claim 1, this object is solved by providing microscopic channels which allow a viewing of a display layer in a third

direction, while light from a first or second direction orthogonal to the third direction is absorbed or reflected by lattice elements.

In view of the foregoing, it is respectfully submitted that Inou does not teach or suggest the subject matter recited in Applicant's independent claim 1. Accordingly, claim 1 is patentable over Inou under 35 U.S.C. §102(b).

Independent claims 11 and 19 have been amended to recite limitations similar to amended independent claim 1 and are, therefore, patentable over Inou for reasons discussed above with respect to independent claim 1.

Independent claim 11 further recites "the lattice spacing being matched to a pixel spacing on the display layer". As described above, Inou fails to disclose a display layer and thus fails to disclose a pixel spacing. Accordingly, Inou fails to disclose that the spacing of any elements is matched to a pixel spacing on the display layer.

In view of the above remarks, independent claim 11 is allowable for at least these additional reasons.

Independent claim 19 further recites that the lattice elements are on a further layer, "the further layer being mounted on top of the touch-sensitive layer on a side which is remote from the display layer and is separate from the touch-sensitive layer".

Regardless of whether the anti-reflective film 8 of Anou is considered to be the claimed lattice elements (which applicant does not believe to be true), the anti-reflective film 8 can not be considered to be in a further layer that is separate from the touch-sensitive layer. Rather, the anti-reflective film is in the touch sensitive layer.

Dependent claims

Claims 2 and 5, which depends from claim 1, incorporate all of the limitations of claim 1 and are, therefore, deemed to be patentably distinct over Inou for at least those reasons discussed above with respect to claim 1.

Rejection of claims 3 and 4 under 35 U.S.C. §103(a)

The Office Action states that the combination of Inou and Furuhashi teaches all of the elements recited in Applicant's claim.

Inou has been previously discussed and does not teach or suggest the invention recited in Applicant's independent claim 1.

Because Inou does not teach or suggest the subject matter recited in Applicant's independent claim 1, and because Furuhashi does not teach or suggest any elements of the independent claims that Inou is missing, the addition of Furuhashi to the reference combination fails to remedy the non-obviousness of the claims.

Claim 4 has been canceled. Claim 3, which depends from claim 1, incorporates all of the limitations of claim 1 and is therefore deemed to be patentably distinct over the combination of Inou and Furuhashi for at least those reasons discussed above for claim 1.

Rejection of claims 6, 8, and 9 under 35 U.S.C. §103(a)

The Office Action states that the combination of Inou and Miura teaches all of the elements recited in Applicant's claim.

Inou has been previously discussed and does not teach or suggest the invention recited in Applicant's independent claim 1.

Because Inou does not teach or suggest the subject matter recited in Applicant's independent claim 1, and because Miura does not teach or suggest any elements of the independent claims that Inou is missing, the addition of Miura to the reference combination fails to remedy the non-obviousness of the claims.

Claims 6, 8, and 9, which depend from claim 1, incorporate all of the limitations of claim 1 and are therefore deemed to be patentably distinct over the combination of Inou and Miura for at least those reasons discussed above for claim 1.

Rejection of claim 7 under 35 U.S.C. §103(a)

The Office Action states that the combination of Inou, Miura, and Palffy-Muhoray teaches all of the elements recited in Applicant's claim.

Inou has been previously discussed and does not teach or suggest the invention recited in Applicant's independent claim 1.

Because Inou does not teach or suggest the subject matter recited in Applicant's independent claim 1, and because Miura and Palffy-Muhoray do not teach or suggest any elements of the independent claims that Inou is missing, the addition of Miura and Palffy-Muhoray to the reference combination fails to remedy the non-obviousness of the claims.

Claim 7, which depends from claim 1, incorporates all of the limitations of claim 1 and is therefore deemed to be patentably distinct over the combination of Inou, Miura, and Palffy-Muhoray for at least those reasons discussed above for claim 1.

Rejection of claims 12 and 14 under 35 U.S.C. §103(a)

The Office Action states that the combination of Inou and Palffy-Muhoray teaches all of the elements recited in Applicant's claim.

Inou has been previously discussed and does not teach or suggest the invention recited in Applicant's independent claim 1.

Because Inou does not teach or suggest the subject matter recited in Applicant's independent claim 1, and because Palffy-Muhoray does not teach or suggest any elements of the independent claims that Inou is missing, the addition of Palffy-Muhoray to the reference combination fails to remedy the non-obviousness of the claims.

Claims 12 and 14, which depend from claim 1, incorporate all of the limitations of claim 1 and are therefore deemed to be patentably distinct over the combination of Inou and Palffy-Muhoray for at least those reasons discussed above for claim 1.

Rejection of claim 13 under 35 U.S.C. §103(a)

The Office Action states that the combination of Inou and Zhang teaches all of the elements recited in Applicant's claim.

Inou has been previously discussed and does not teach or suggest the invention recited in Applicant's independent claim 1.

Because Inou does not teach or suggest the subject matter recited in Applicant's independent claim 1, and because Zhang do not teach or suggest any elements of the independent claims that Inou is missing, the addition of Zhang to the reference combination fails to remedy the non-obviousness of the claims.

Claim 13, which depends from claim 1, incorporates all of the limitations of claim 1 and is therefore deemed to be patentably distinct over the combination of Inou and Zhang for at least those reasons discussed above for claim 1.

Conclusion

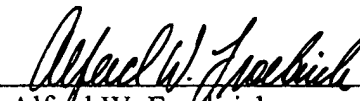
In view of the foregoing, reconsideration and withdrawal of all rejections, and allowance of all pending claims, are respectfully solicited.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned

Respectfully submitted,

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